

Evolution of the neural crest viewed from a gene regulatory perspective.

Journal: Genesis

Publication Year: 2008

Authors: Tatjana Sauka-Spengler, Marianne Bronner-Fraser

PubMed link: 19003930

Funding Grants: Training in Stem Cell Biology at CIT

Public Summary:

Here we review the gene network responsible for formation of neural crest cells from primitive vertebrates like lamprey to higher vertebrates. This network appears to be largely conserved through evolutionary time, suggesting it was mostly in place at the dawn of vertebrates.

Scientific Abstract:

Neural crest cells are a vertebrate innovation and form a wide variety of embryonic cell types as diverse as peripheral neurons and facial skeleton. They undergo complex migration and differentiation processes from their site of origin in the developing central nervous system to their final destinations in the periphery. In this review, we summarize recent data on the current formulation of a gene regulatory network underlying neural crest formation and its roots at the base of the vertebrate lineage. Analyzing neural crest formation from a gene regulatory viewpoint provides insights into both the developmental mechanisms and evolutionary origins of this vertebrate-specific cell type.

Source URL: <https://www.cirm.ca.gov/about-cirm/publications/evolution-neural-crest-viewed-gene-regulatory-perspective>